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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,194	06/25/2003	Paul Childs	GMC 0040 PA/40320.43	4364
7590	04/20/2005		EXAMINER	
Killworth, Gottman, Hagan & Schaeff, L.L.P. Suite 500 One Dayton Centre Dayton, OH 45402-2023			TRAN, BINH Q	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/606,194	<b>Applicant(s)</b> CHILDS ET AL.	
	<b>Examiner</b> BINH Q. TRAN	<b>Art Unit</b> 3748	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 0.9, 1-9, 11-24 and 32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 and 11-24 is/are allowed.
- 6) ☒ Claim(s) 32-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)<br>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)<br>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____.<br>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)<br>6) <input type="checkbox"/> Other: _____. |
|--|--|

## DETAILED ACTION

This office action is in response to the amendment filed February 01, 2005.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

*Claims 32-39 are rejected under 35 U.S.C. 102 (b) as being anticipated by Caren et al.*

*(Caren) (Patent Number 6,716,398).*

Regarding claim 32, Caren discloses a device comprising an engine (11) configured to generate torque and a nitrogen oxide containing exhaust, at least one peripheral system, and a NOx removal system (13) for removing nitrogen oxides from said nitrogen oxide containing exhaust, said NOx removal system comprising a NOx treatment section (11), an exhaust diverter (e.g. E, 43), and a hydrogen generation section (e.g. 20, 20', 20'', 20''') , wherein: said NOx treatment section is configured to remove nitrogen oxides from said exhaust (Fig. 4); said exhaust diverter is configured to divert a portion of said exhaust to said hydrogen generation

section; said hydrogen generation section is configured to deliver hydrogen to said NO<sub>x</sub> treatment section; said hydrogen generation section is configured to generate oxygen as a by product of hydrogen generation and deliver said oxygen with said diverted exhaust to said peripheral system (e.g. See col. 10, lines 42-67; col. 11, lines 1-67; col. 12, lines 1-27).

Regarding claim 33, Caren further discloses that the peripheral system comprises a fuel injection system (31) of said engine (e.g. See col. 8, lines 44-67; col. 10, lines 4-24).

Regarding claim 34, Caren further discloses that the peripheral system comprises an engine cooling system (e.g. See Figs. 1-3; col. 8, lines 44-67; col. 10, lines 4-24).

Regarding claim 35, Caren further discloses that the peripheral system comprises a suspension system (e.g. See Figs. 1-3; col. 8, lines 44-67; col. 10, lines 4-24).

Regarding claim 36, Caren further discloses that the peripheral system comprises a gaseous filter regeneration system (e.g. See Figs. 1-3; col. 8, lines 44-67; col. 10, lines 4-24).

Regarding claim 37, Caren further discloses that the peripheral system comprises a hydrogen storage system (e.g. See Figs. 1-3; col. 10, lines 42-67; col. 11, lines 1-67; col. 12, lines 1-27).

Regarding claim 38, Caren further discloses that the hydrogen storage system comprises hydrogen dispensing hardware (e.g. See Figs. 1-3; col. 10, lines 42-67; col. 11, lines 1-67; col. 12, lines 1-27).

Regarding claim 39, Caren discloses device for generating hydrogen from a water vapor containing exhaust (50), said device comprising an exhaust diverter (e.g. E, 43) and a hydrogen generation section (e.g. 20, 20', 20'', 20'''), wherein: said exhaust diverter is configured to divert a portion of said exhaust and deliver said diverted exhaust to said hydrogen generation

section (e.g. 20, 20', 20'', 20'''); said hydrogen generation section comprises an electrolysis unit (e.g. 20, 20', 20'', 20''') defining a hermetically sealed void volume configured to accumulate and store hydrogen generated by said electrolysis unit (e.g. See col. 10, lines 42-67; col. 11, lines 1-67; col. 12, lines 1-27).

***Claim 39 is rejected under 35 U.S.C. 102 (b) as being anticipated by Andrews et al. (Andrews) (Patent Number 6,464,854).***

Regarding claim 39, Andrews discloses device for generating hydrogen from a water vapor containing exhaust (10), said device comprising an exhaust diverter (e.g. 307, 328) and a hydrogen generation section (e.g. 20, 24), wherein: said exhaust diverter is configured to divert a portion of said exhaust and deliver said diverted exhaust to said hydrogen generation section; said hydrogen generation section comprises an electrolysis unit defining a hermetically sealed void volume configured to accumulate and store hydrogen generated by said electrolysis unit (e.g. See Figs. 1, 8, and 11-12; col. 8, lines 27-67; col. 9, lines 1-67; col. 10, lines 1-12).

***Claim 39 is rejected under 35 U.S.C. 102 (b) as being anticipated by Zagaja et al. (Zagaja) (Patent Number 6,659,049).***

Regarding claim 39, Zagaja discloses device for generating hydrogen from a water vapor containing exhaust, said device comprising an exhaust diverter (e.g. 15) and a hydrogen generation section (e.g. 18, 22, 32, 36), wherein: said exhaust diverter is configured to divert a portion of said exhaust and deliver said diverted exhaust to said hydrogen generation section; said hydrogen generation section comprises an electrolysis unit defining a hermetically sealed void volume configured to accumulate and store hydrogen generated by said electrolysis unit (e.g. 32, 36) (e.g. See Figs. 1-2; col. 3, lines 15-67; col. 4, lines 1-53).

***Allowable Subject Matter***

Claims 1-9, and 11-24 are allowed.

Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

***Response to Arguments***

Applicant's arguments filed February 01, 2005 have been fully considered but they are not completely persuasive. ***Claims 1-9, 11-24, and 32-39 are pending.***

Applicant's cooperation in amending the claims to overcome the claim rejections is appreciated.

Applicant's arguments with respect to claims 1-9, 11-24, and 32-39 have been considered but are moot in view of the new ground(s) of rejection as discussed above.

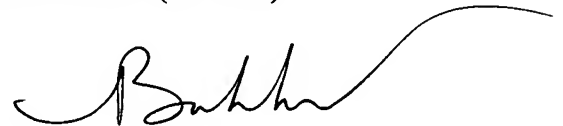
*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT  
April 15, 2005



Binh Q. Tran  
Patent Examiner  
Art Unit 3748